


PRE-APPEAL BRIEF REQUEST FOR REVIEW		Docket Number Q78640	
Mail Stop AF Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Application Number	Filed	
	10/724,882	December 2, 2003	
	First Named Inventor		
	Yoshihiro UETANI		
	Art Unit	Examiner	
	1794	Anish P. DESAI	
<p style="text-align: center;">WASHINGTON DC SLIGHRIE/265550</p> <p style="text-align: center;">65565</p> <p style="text-align: center;">CUSTOMER NUMBER</p>			
<p>Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.</p> <p>This request is being filed with a notice of appeal</p> <p>The review is requested for the reasons(s) stated on the attached sheet(s). Note: No more than five (5) pages may be provided.</p> <p><input checked="" type="checkbox"/> I am an attorney or agent of record.</p> <p>Registration number 47,121</p> <div style="text-align: right;">  Signature </div> <div style="text-align: right; margin-top: 20px;"> Keiko K. Takagi Typed or printed name </div> <div style="text-align: right; margin-top: 20px;"> (202) 293-7060 Telephone number </div> <div style="text-align: right; margin-top: 20px;"> October 26, 2009 (timely filed, October 24, 2009 being a Saturday) Date </div>			

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q78640

Yoshihiro UETANI, et al.

Appln. No.: 10/724,882

Group Art Unit: 1794

Confirmation No.: 1657

Examiner: Anish P. DESAI

Filed: December 2, 2003

For: **CROSSLINKING POLYMER-SUPPORTED POROUS FILM FOR BATTERY SEPARATOR AND
METHOD FOR PRODUCING BATTERY USING THE SAME**

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MAIL STOP AF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

Pursuant to the Pre-Appeal Brief Conference Pilot Program, and further to the Examiner's Final Office Action dated June 24, 2009, Applicant files this Pre-Appeal Brief Request for Review. This Request is also accompanied by the filing of a Notice of Appeal.

Applicants turn now to the rejection at issue: Claims 1-7 and 9 are still rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Yuji et al. (JP 2002-110245; hereinafter "JP '245") in view of Nakagawa.

Basically, the Examiner asserts that the difference between claim 1 and JP '245 is that JP '245 does not explicitly teach "a crosslinking polymer layer formed on the porous film substrate so as to be in contact with the porous film substrate consisting of a crosslinking polymer layer" and that JP '245 does not teach coating of the crosslinking polymer onto a porous film substrate. However, the Examiner takes the position that Nakagawa teaches the

disadvantage of using a liquid electrolyte by impregnating or coating a porous material with a monomer solution comprising a crosslinkable monomer. The Examiner asserts that it would have been obvious to use the porous film of Nakagawa in the JP '245 to form a crosslinking polymer layer motivated by the desire to avoid increase of internal resistivity.

The Examiner also asserts that Nakagawa discloses coating the porous film with a monomer solution and then crosslinking the monomer, and thus, before the polymer is crosslinked it is clearly a crosslinking polymer.

Applicants respectfully disagree and submit that a *prima facie* case of obviousness has not been established.

Claim 1 is directed to a crosslinking polymer-supported porous film for battery separator, the crosslinking polymer-supported porous film comprising: a porous film substrate; and a crosslinking polymer layer formed on the porous film substrate so as to be in contact with the porous film substrate consisting of a crosslinking polymer having plural cation-polymerizable functional groups and being polymerizable in the presence of cation.

Thus, claim 1 is directed to a porous film prior to being used in a battery (that is, no electrolyte is present). Thus, the claimed porous film is a layer of the crosslinking polymer. In contrast, JP '245 discloses a liquid composition comprising the oxetane ring polymer, ethylene carbonate/diethyl carbonate/dimethyl carbonate, and hexafluoro-phosphate lithium. The "consisting of" language excludes the additional components and thus, distinguishes claim 1 from JP '245.

In addition, it is submitted that there is no motivation to modify JP '245 as proposed by

the Examiner to arrive at the claimed invention.

Nakagawa discloses that a crosslinked material layer is formed on a porous material (separator). *See e.g.*, [0024]-[0025] and [0042]. More specifically, Nakagawa discloses that the crosslinked layer is formed from at least one monomer having an unsaturated bond, monomer having an epoxy group, or a monomer having an isocyanates group. *See* [0025]. Nakagawa further discloses that the separator can be prepared by coating the porous material with a monomer solution comprising the crosslinkable monomer. *See* [0071]. Indeed, in the Examples, e.g., Example 1, a monomer solution is applied to a microporous polyethylene membrane as a porous material and irradiated so that the monomer was crosslinked to form a crosslinked material layer.

Accordingly, since Nakagawa teaches the use of a “crosslinked” layer, if JP ‘245 were modified to use the method of Nakagawa, the result would be a “crosslinked” layer as opposed to a “crosslinking” layer, which is claimed.

In this regard, the Examiner asserts that “before the polymer is crosslinked it is clearly a crosslinking polymer.” However, Nakagawa teaches that a crosslinkable monomer solution is coated on the porous material. Thus, prior to crosslinking, the layer is a crosslinkable monomer, not a crosslinkable polymer, as recited in claim 1. The Examiner has accepted this distinction as he withdrew the §102 rejection over Nakagawa. *See* Office Action dated April 30, 2008.

Furthermore, the “benefits” of using the method of Nakagawa is based on the “crosslinked” material layer formed on the porous material. That is, Nakagawa discloses that in

order to overcome the disadvantages of the prior art, a separator for a battery comprising a crosslinked material layer formed on a porous material having a gas permeability. *See* [0009]-[0012]. Based on such teaching in Nakagawa, one of ordinary skill in the art may form a crosslinked polymer layer, but would not be motivated to form a crosslinkable polymer layer.

Moreover, JP '245 teaches a crosslinked material (gel). Specifically, JP '245 discloses that a solidification of electrolyte is necessary in order to avoid danger, such as a leaking of electrolyte, explosion, and ignition. *See* page 16, [0002]. Additionally, in JP '245, it is preferable that there is no bleeding of the electrolyte from the gel. *See* page 21, [0008]. Thus, the liquid electrolyte of JP '245 exists in a state that it is caught by the crosslinked material layer (gel). Furthermore, JP '245 discloses that the bleeding of the electrolyte is not preferable in Table 2 (*see* page 39-41, [0029]).

Thus, if JP '245 were modified to have an uncrosslinked material, it is submitted that JP '245 would be rendered inoperable for its intended purpose. *See* MPEP §2143.01.V. ("If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)").

For at least the above reasons, it is respectfully submitted that claim 1 is patentable over the cited art.

In addition, claims 2-7 and 9 depend from claim 1, and thus it is respectfully submitted that these claims are patentable for at least the same reasons as claim 1.

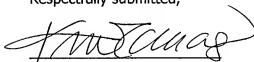
Accordingly, Applicants respectfully request the Pre-Appeal Brief Conference Panel to

**Pre-Appeal Brief Request for Review
U.S. Application No. 10/724,882**

Attorney Docket Q78640

withdraw the foregoing rejection.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Keiko K. Takagi', written over a horizontal line.

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